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10/598,441	08/30/2006	Yasuaki Yuda	NGB-41035	5131
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PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108			SINGH, HIRDEPAL	
			ART UNIT	PAPER NUMBER
			2611	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### DETAILED ACTION

1. This action is in response to the amendment filed on February 26, 2009. Claims 1-9 are pending and have been considered below.

#### ***Response to Arguments***

2. The amendment corrected the informalities in the claims. Therefore, the objection to claims 1-9 is withdrawn.

3. The amendment clarification provided by applicant solved the antecedent problem. Therefore, the 35 USC 112 rejection to claims 3-9 is withdrawn.

4. Applicant's arguments filed February 26, 2009 regarding claim 1 have been fully considered but they are not persuasive.

5. Applicant argues that "...The asserted combination does not disclose that a correction value detection unit "detects a correction value for correcting deviation" as claimed by claim 1...Applicant respectfully asserts that  $M_{ut,m}$  is not a "correction value" as is claimed by claim 1 ... Thus, as stated by Walton, the computations involving  $M_{ut,m}$  reproduce a data symbol stream in the user terminal, that originates from the base station. Simply stated, in this instance, the controller 480's only function is to derive a variable necessary to reconstruct the transmission. Once  $M_{ut,m}$  is derived, it is forwarded to another processor for further computation. Therefore, the controller fails to "detect a correction value for correcting deviation" as stated in claim 1..." (Remarks, page 8-9).

6. Examiner respectfully traverses Applicant's opinion because the prior art of record disclose the features of independent claims, The Applicant(s) is/are reminded

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that the rejection is made based on the entire content of the cited prior art and primary reference Walton shows in figures 4, 6, 8 that controller clearly receives data from receiver and transmitter processor and based on that making the adjustment of correction and also the controller not only controls the operation of one terminal, but controls the access point and user terminal, the response of transmit and receive chains are different at access point and user terminal and the difference is corrected (paragraphs 0104 and 0122) by calibrating the determined difference based on the particular method used in the invention, also the present invention doesn't claimed any specific method for calculating and calibrating deviation in the argued claims.

7. The argument that "...even if the spatial filter matrices  $M_{ut,m}$  is regarded as a correction value, the deviation calibration is performed between the transmission circuitry 420 of AP 110 and the receiver circuitry ... the deviation is calibrated between the transmission circuit of the communication unit and the reception circuit of *another* communication unit. On the other hand, in the claimed invention, the deviation is corrected between the transmission circuit and the reception circuit *both included in the (same) wireless communication apparatus. ..*" (Remarks, page 9) is respectfully traversed because the Walton reference describes that the deviation or mismatch is corrected by calibrating the transmitter and receiver circuitry and the controller at access point and user terminal generally communication with one another in the communication systems, here in case of Walton the controller controls the deviation of difference at one place as in user terminal and clearly shown in figure 4 the controller action is based on the data from receiver and transmitter processor. From the above

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discussion, it is clear from the above discussion that claimed features are disclosed in prior art references, Therefore, the rejection to the claims is upheld.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walton et al. (US 2008/0037681) in view of Wallace et al. (US 2005/0185728).

**Regarding claim 1:**

Walton discloses a wireless communication apparatus for conducting wireless communications according to a time division duplex (TDD) system, comprising:

a plurality of antennas (452 in figure 4);

a transmission circuit (454 TMTR in figure 4) for transferring a transmission signal to the plurality of antennas (paragraph 0116);

a reception circuit (454 RCVR in figure 4) for transferring a reception signal from the plurality of antennas;

a channel estimation unit (478 in figure 4) which detects channel information using the reception signal from the reception circuit (paragraph 0121); and

a correction value detection unit (480 in figure 4) which detects a correction value for correcting deviation (paragraphs 0122, controller controls the deviation calibration

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between transmission and receiver circuitry) occurring between the transmission circuit and the reception circuit using the channel information from the channel.

Walton discloses all of the subject matter as described above except for specifically teaching that the detected calibration or correction value is based on a correction signal transmitted from another (a second) wireless communication apparatus with which the wireless communication apparatus conducts communications.

However, Wallace in the same field of endeavor discloses a system and method for calibrating uplink and downlink channel responses where the detected calibration or correction value (322 and 342 in figure 3, as shown in present invention figure 4) is based on a correction signal transmitted from another (a second) wireless communication apparatus (i.e. access point or base station, see figure 1) with which the wireless communication apparatus conducts communications (downlink steered or probe signal sent by access point, see paragraph 0011; is sent after the channel response is calculated and use for calibration at both user terminal and base station paragraph 0010 and 0021, table 1).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to use teachings of Wallace in Walton to calibrate the differences in transmission and reception circuits based on a correction value that is sent by the access point or base station to the user terminal in a follow up of the calibration process to account for the errors in the correction matrices of Wallace to correct the deviation or difference in the actual uplink and downlink channel responses to keep the system performance at optimum level by updating the calibration errors that occur due to

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changing condition in the channel and other factors in the communication system by keeping higher throughput and greater reliability.

***Allowable Subject Matter***

10. Claims 2-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record discloses a system for time division duplex communication with multiple antennas, where the wireless communication apparatus and the base station or access point estimates the channel and based on the channel condition corrected or calibrate the deviation or imbalance in the transmission and reception circuits and further the base station sends a correction value in the transmitted signal to the user terminal for further correction, but prior art fails to teach or disclose that the correction value detection unit detects the correction value for correcting deviation occurring between the transmission and reception circuits connected to each antenna from the correction signal transmitted from the different wireless communication apparatus i.e. base station with which the wireless communication apparatus conducts communications and the different/second communication apparatus transmits a known signal to first wireless communication apparatus. these limitations are part of the dependent claims, but the claim(s) would be allowable if rewritten in independent form including all of the limitations of the base

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claim and any intervening claims and overcome the objections and rejections set forth in this office action.

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HIRDEPAL SINGH whose telephone number is (571) 270-1688. The examiner can normally be reached on Mon-Fri (Alternate Friday Off) 8:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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/H. S./

Examiner, Art Unit 2611

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611